Unemployment Alters the Set-Point for Life Satisfaction

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Abstract

According to set-point theories of subjective well-being, people react to events, but then return to initial levels of happiness and satisfaction over time. We test this idea by examining reaction and adaptation to unemployment in a 15-year longitudinal study. In accordance with set-point theory, individuals first reacted strongly to unemployment and then shifted back toward their former (or "baseline") levels of life satisfaction. However, on average, individuals did not completely return to their former levels of life satisfaction, even after they became re-employed. The findings suggests that even a short period of unemployment can cause an alteration in a person's long-term set-point. Within-person analyses showed, however, that there are considerable individual differences in reaction and adaptation to unemployment. Although there was substantial stability in life satisfaction over the years, unemployment did influence long-term levels, thus suggesting that in addition to personality, long-term subjective well-being can also be influenced by life circumstances.

Unemployment Alters the Set-Point for Life Satisfaction

Subjective well-being (SWB) researchers examine the causes and correlates of life satisfaction, positive affect, and negative affect (Diener, Suh, Lucas, & Smith, 1999). Research shows that these variables are moderately to strongly stable over time and often change only slightly following major life events. Personal life circumstances including one's health, income, and beauty often account for a very small percentage of variance in SWB (Argyle, 2001; Diener et al., 1999; Myers, 1992). Suh, Diener, and Fujita (1996) estimated that most life events affect SWB for less than two months, and Costa, McCrae, and Zonderman (1987) showed that the stability of SWB does not seem to be affected by the events that happen to people—individuals who experienced major life events exhibited similar long-term test-retest reliability on SWB measures as did those who experienced no such major life events. Furthermore, personality and temperament variables seem to play a strong role in determining individuals' levels of SWB (Diener & Lucas, 1999). Tellegen et al. (1988), for example, used a twin study design to show that genes account for about half of the variance in positive and negative affect. In a later study, Lykken and Tellegen (1996) concluded that about 80 percent of the variance in long-term levels of SWB could be attributed to inborn temperament. Researchers have therefore claimed that people have inborn SWB "set-points" (Headey & Wearing, 1992). According to this theory, people initially react to events, but then return to baseline levels of well-being that are determined by personality factors.

Most studies that test the set-point theory examine reactions to life events using one of two research designs. Cross-sectional studies examine the impact of life events by comparing the SWB of people who have experienced an event to those who have not (e.g., Brickman, Coates, & Janoff-Bulman, 1978); and post-event longitudinal studies examine the course of adaptation using a longitudinal design that begins shortly after an event has taken place (e.g., Silver, 1982).

Unfortunately, neither of these designs is ideal because pre-event levels of SWB are not known. Thus, these designs cannot determine whether people return to pre-event levels of SWB. In addition, because many events do not occur randomly, pre-existing differences might influence the experience of events. For example, longitudinal studies have shown that happiness prospectively predicts higher income levels (e.g., Diener, Nickerson, Lucas, & Sandvik, 2001; Marks & Fleming, 1999), better health (Danner & Snowdon, 2001), and the experience of various positive life events (Magnus, Diener, & Fujita, 1996). Thus, happiness might cause these variables rather than be caused by them.

Occasionally, prospective longitudinal studies have tracked exposure and reaction to a variety of life events over time (e.g., Costa, et al., 1987; Headey & Wearing, 1992; Suh, et al, 1996). However, these studies often do not have large enough samples to examine large numbers of people who have experienced the same event. Researchers who use this type of design often aggregate across various types of events, focusing on whether people who experience many life events are happier or more stable in their levels of well-being than are those who experience few of these events. This aggregation makes it impossible to determine the extent and time course of adaptation to specific life events.

Existing studies of adaptation to life events also suffer from an additional limitation: These studies usually neglect individual differences in reaction to events. Instead of examining within-person changes following important life events, researchers often compare average levels of SWB before and after an event or between groups who experienced the event and groups who did not. If average levels of SWB are the same across groups or across time periods, researchers may conclude that adaptation has occurred. However, even if average levels are stable, there could be a great deal of individual-level instability. People who were above average before the event could

be below average after the event, while mean levels stay the same. Furthermore, by examining individual differences in within-person trends, person-level characteristics can be used predict the extent to which people adapt to life events. For example, Wortman and Silver (1990) found that parents who did not show extreme grief immediately following the death of their child had higher levels of long-term well-being a number of years after the death. Therefore, to provide an adequate test of set-point theory, researchers must use large-sample longitudinal studies to examine both individual-level and group-level changes following exposure to an important life event.

In a study that used such a design, Lucas, Clark, Georgellis, and Diener (2001) studied people's adaptation to marriage, divorce, and widowhood. They found that people often showed incomplete adaptation to marital transitions. Furthermore, Lucas et al. demonstrated that there were considerable individual differences in these reactions, and that the strength with which one reacted to an event was strong predictor of whether or not he or she would ever completely adapt.

In the current study we extend the analyses of long-term adaptation by examining adaptation to unemployment. Specifically, we ask whether this life-altering event changes people's set-point for life satisfaction. Previous cross-sectional studies of unemployment have shown that unemployed individuals tend to be substantially less happy than employed individuals (Argyle, 2001; Clark and Oswald, 1994). As mentioned above, however, cross-sectional studies leave open the possibility that unemployed individuals were unhappier to begin with, or that unhappiness led to the unemployment.

The study of unemployment provides a unique opportunity to investigate the set-point theory because most people remain unemployed for relatively short periods of time. For example, in the current study, most of the individuals who become unemployed over the course of the study

were only unemployed for approximately one year or less. If set-point theory were true, these individuals should return to their baseline levels of life satisfaction as soon as they become re-employed. If the experience of unemployment has a significant effect on long-term levels of well-being even after the event is over and people become re-employed, then this would be strong evidence against the set-point theory[2].

In summary, we examine whether patterns of reaction and adaptation to unemployment support a set-point theory of SWB. Specifically, we track levels of life satisfaction before and after unemployment in a 15-year longitudinal study of German households. We identify a group of individuals who began the study employed, experienced a single episode of unemployment, and then became re-employed for the remainder of the study. We estimate a baseline level of life satisfaction for each individual, and then determine the extent to which individuals deviate from this level during unemployment and in the years after they become re-employed. If set-point theory is correct, individuals should initially react strongly to unemployment, but then should return to their baseline levels after a year or two. If unemployment alters the set-point for life satisfaction, then people will not fully adapt to the unemployment event, even years after they become re-employed. This question is of large applied importance to society because it is relevant to whether progress in societal SWB is doomed by what Brickman and Campbell (1971) called the hedonic treadmill.

Method

The data in this study were obtained from waves 1 through 15 of the German Socio-Economic Panel Study (GSOEP), a longitudinal study of German households (see Haisken-De New & Frick, 1998, for a description of the study and its sample). Households were selected using multi-stage random sampling, and all members of each selected household were asked to

participate. Surveys were conducted yearly using face-to-face interviews. The entire sample consists of 31,680 respondents who participated in at least one of the 15 waves (the study is on-going). In addition to a variety of demographic questions (including sex, age, income, and employment status, the primary independent variable of interest in the current study), participants were asked how satisfied they were with their lives at the time of the survey, using a scale that ranged from 0 to 10. Because of certain trends in the data, we centered life satisfaction scores within each year of the survey and within four sub-samples of the larger population (West Germans, East Germans, immigrants to Germany, and foreigners living in Germany; see Lucas et al., for details). Thus, a score of zero on the life satisfaction measure reflects the average level of satisfaction for a particular year within a particular sub-sample.

Analytic Technique. We used a multi-level modeling approach to investigate within-person changes in life satisfaction before, during, and after unemployment (see Kreft & DeLeeuw, 1998, for an introduction to these techniques; see Lucas et al., 2001, for a more detailed discussion of the specific models we used to test reaction and adaptation). Participants were selected from the larger sample if they began the study employed, experienced one period of unemployment during the study, regained employment, and then stayed employed for the remainder of the study. This selection strategy allowed us to estimate a stable baseline period and a stable adaptation period for each individual. One thousand, one hundred, and nineteen individuals met the criteria.

At the within-person level of the model, life satisfaction was predicted from an intercept, a reaction dummy variable, and an adaptation dummy variable (plus an income variable that controlled for changes in income as individuals lost and regained employment). The estimated intercept reflects a person's baseline level of life satisfaction before he or she became unemployed. The reaction dummy variable was coded "0" for all years that were at least two years before the

person became unemployed; “1" for the year before unemployment, all years of unemployment, and the year after unemployment; and “0" for all years that were at least one year after the person became re-employed. The estimated parameter for this variable reflects a person’s average change in life satisfaction that occurred during the years in which the person was unemployed[1]. The adaptation dummy variable was coded “1" for all years that were at least one year after the person regained employment; for all other years it was coded “0.” The estimated parameter for this variable reflects the average change from baseline that occurs during the years after unemployment. The critical test for set-point theory is whether or not this parameter equals zero (which would suggest a return to baseline and complete adaptation).

We should note that this model requires that all participants contribute data for at least two years before and after their period of unemployment, a criterion that is more restrictive than our initial selection criterion. Six hundred sixty-nine respondents met this more restrictive selection criterion. However, the multi-level modeling analytic technique allows participants to contribute to the estimate of parameters, even if they do not have complete data. Therefore, the 1,119 participants contribute to the fixed part of the model, but only the 669 participants with complete data contribute to the estimate of correlations among parameters.

At the between-persons level of the model, average parameters were examined to determine the normative pattern of reaction and adaptation to unemployment. In addition, person-level characteristics (age, sex, income, and length of time unemployed) were entered into the model to determine whether these characteristics moderate the within-person patterns. Finally, correlations among parameters were estimated to determine whether people with higher baseline levels of satisfaction or stronger reactions to unemployment have higher or lower life satisfaction in the adaptation phase.

Results

Results from the multi-level model are reported in Table 1. The intercept for each effect represents the average within-person parameter for all respondents (weighted by the reliability of each person's estimate). The parameters associated with the between-person characteristics (age, sex, income, and whether the person was unemployed for multiple years) reflect the extent to which these between-person characteristics moderate the within-person parameters.

Table 1 shows that the respondents who met our selection criteria were approximately one-quarter of a point higher than average on life satisfaction before they became unemployed. However, this effect was moderated by two person-level characteristics—average income, and whether or not the individual was unemployed for multiple years. People with higher incomes began the study with higher levels of life satisfaction; and people who were unemployed for more than one year began the study approximately one-quarter point lower than the other respondents in this sample.

Table 1 also shows that within-person changes in income had a significant and substantial positive effect on people's life satisfaction over the course of the study (a coefficient of .40); but that even after controlling for this effect, people become over one-half of a point less satisfied during the reaction phase of unemployment. This difference is fairly large—approximately one-half of a standard deviation in baseline levels of life satisfaction (the standard deviation for the intercept was 1.05). Although there is quite a bit of variability around this parameter (the standard deviation for this slope was 0.88), none of the between-person characteristics moderated the effect. Thus, reactions to unemployment were similar regardless of sex, age, income, or length of time one remained unemployed. It also can be noted that people's average income moderates the effect of within-person changes in income – the higher a respondent's average income, the less

changes in income influence life satisfaction.

The critical test for set-point theory is whether or not people return to baseline levels of life satisfaction following an important life event. Table 1 shows that, on average, people do not return to baseline levels long after the period of unemployment has ended (recall that this parameter reflects the average of all years that are at least one year after the end of unemployment). In fact, although the adaptation parameter is significantly smaller than the reaction parameter ($\chi^2 = 6.57$, df = 1, $\underline{p} < .05$), which shows that people do start shifting back towards baseline during the adaptation phase, the parameter is still fairly large. Thus, the experience of unemployment seems to have created a new baseline level of life satisfaction that is almost one standard deviation lower than their initial levels before the unemployment began. The moderator analyses show that none of the person-level characteristics influenced this within-person adaptation parameter.

We also calculated the correlations among these within-person parameters to determine whether people who were initially more satisfied reacted more or less strongly or adapted more or less completely to unemployment. Initial baseline levels of satisfaction correlated -.11 with the reactivity parameter and -.30 with the adaptation parameter. Thus, people who were more satisfied to begin with were less likely to adapt back to baseline. Perhaps more strikingly, the reaction parameter correlated .67 with the adaptation parameter, demonstrating that how one reacts to unemployment predicts how he or she will adapt in the long run.

We conducted a regression analysis predicting adaptation parameters from initial baseline levels and from the reaction parameters. Based on this regression analysis, we constructed plots showing predicted life satisfaction during the adaptation phase for individuals who experienced an above average reaction, a below average reaction, or an average reaction to unemployment.

Figure 1 shows plots of three hypothetical individuals who began the study with an average level of life satisfaction: One person who has an average reaction to unemployment; one person who has a reaction that is one standard deviation above the mean reaction; and one person who has a reaction that is one standard deviation below the mean reaction. As can be seen, there is quite a bit of variability in reaction and adaptation, and adaptation is strongly influenced by the extent to which one reacts to this unpleasant event. In addition, on average, people do not change much from the reaction phase to the adaptation phase, suggesting that exposure to unemployment creates a new baseline level of life satisfaction.

To explore this idea further, we tested a separate multi-level model. Instead of examining the change from baseline that occurs during the reaction phase and the adaptation phase, we simply correlated the average levels of satisfaction in each of these three periods. Satisfaction in the baseline period correlated .73 and .62 with satisfaction in the reactivity and adaptation periods, respectively. Satisfaction in the reactivity period correlated .80 with satisfaction in the adaptation phase. These stability parameters are high because each measure is based on average life satisfaction reports over several years of the study. In order to determine whether unemployment created an effect that moved the baseline, we predicted satisfaction in the adaptation phase from satisfaction in the baseline phase and the reaction phase. Although baseline levels are strongly correlated with adaptation phase levels, the reaction phase added significantly to the prediction (γ= .69, S.E. = .08, $\underline{t}$ = 9.09, $\underline{p}$ < .001) when both average baseline satisfaction and average reaction phase satisfaction were entered into the equation. This indicates that although the baseline phase captures a substantial amount of variance in the adaptation level, satisfaction during the reaction phase adds variance to the prediction of one's eventual adaptation level.

Discussion

Although the baseline of life satisfaction was relatively stable for individuals from before to after unemployment, the experience of unemployment did on average alter people's baseline. At the aggregate level, people were less satisfied long after unemployment, suggesting that the event lowered the average set-point of these respondents. At the individual level, people's set-point changed in that some individuals' life satisfaction increased slightly after adaptation to the unemployment experience, whereas other people's life satisfaction stayed substantially lower even after many years.

One question is whether some personal event such as alcoholism or depression might have led to both unemployment and to lower life satisfaction, without unemployment having a causal role. Although this possibility cannot be ruled out entirely, several things cast doubt on it. First, prior to unemployment, the individuals who would eventually become unemployed reported a high level of life satisfaction, and did not show evidence of lower levels that would likely result from initial problems with alcohol, dysphoria, and so forth. Furthermore, even individuals who dropped dramatically after unemployment showed some rebound toward baseline, not the pattern we would expect from a downward spiral due to internal causes. Second, it should also be noted that Lucas, Clark, Georgellis, and Diener (2001) found that widows show a sharp decline in life satisfaction and do not on average return to their former levels even after five years, and it would seem that widowhood is not likely to be caused by one's own unhappiness or personal problems. Thus, we believe that the present evidence is most readily interpreted in terms of the effects of unemployment on long-term life satisfaction.

Of course our results are not incompatible with the idea that temperament is a powerful influence on SWB; our data simply suggest that temperament is not the sole influence on the set-point of life satisfaction over many years. Our data show strong temporal stability in life

satisfaction, which is compatible with the idea of a strong temperament influence (Tellegen et al., 1988).

There is substantial stability in life satisfaction during adulthood, but events such as unemployment or widowhood can change people's long-term level. It is important to note, however, that an event such as unemployment does not have the same meaning or influence on everyone – there are clear individual differences in reactions to these events, as has been noted in other contexts of loss (Lehman, Lang, Wortman, & Sorenson, 1989). Our findings suggest that an unemployment experience might scar people in some way so that they are less satisfied with life on average even after re-employment and even controlling for income.

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Footnotes

[1]The year before unemployment was included as part of the reaction phase because previous studies have shown that there are anticipatory reactions to life events (Lucas et al., 2001). These anticipatory reactions should not be included as part of a person's baseline level of satisfaction, and therefore, they are included as part of the reaction, itself. The year after unemployment was included as part of the reaction phase so that the adaptation parameter would only reflect changes from baseline that occurred years after the person had regained employment.

[2] Economists have expressed some interest in this specific question. Using the current paper's GSOEP dataset, Winkelmann and Winkelmann (1998) note (p.6), without presenting formal statistical tests, "employees with past unemployment experience have in fact a lower satisfaction than the average employee". With the same data, Clark, Georgellis and Sanfey (2001) find, in a regression framework, that those who experienced higher unemployment rates over the past three years, as a proportion of their total time active in the labour market, report lower satisfaction scores. See also Darity and Goldsmith (1996).

Table 1

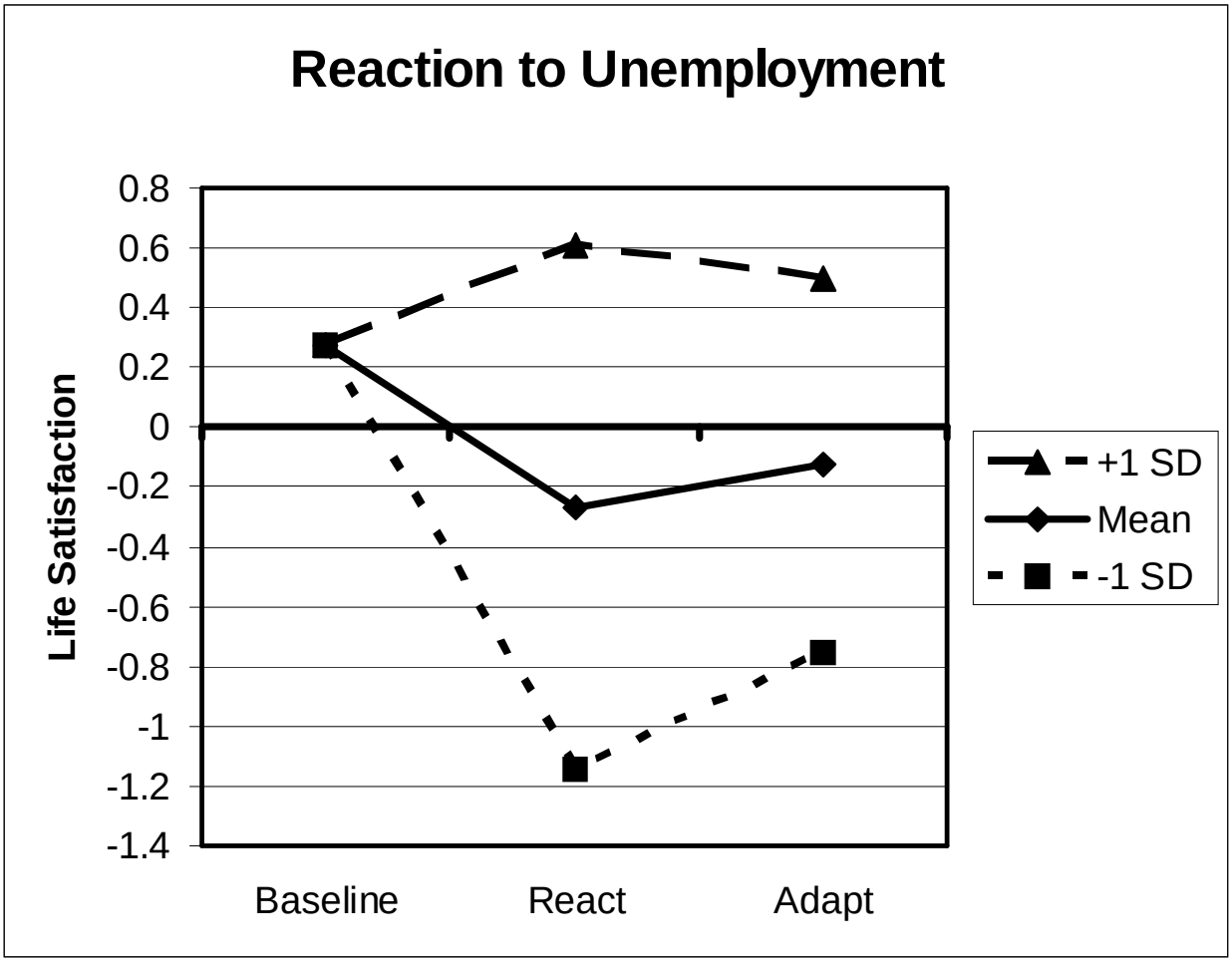
Changes in life satisfaction during and after unemployment.

Effect	Coefficient	S.E.	t	p
Initial level, β_0				
Intercept, γ_{00}	0.271	0.048	5.601	<0.001
Sex, γ_{01}	-0.078	0.085	-0.912	n.s.
Age, γ_{02}	-0.002	0.003	-0.473	n.s.
Average Income, γ_{03}	0.565	0.126	4.478	<0.001
Multiple Years, γ_{04}	-0.248	0.102	-2.422	<0.05
Within-Person Income, β_1				
Intercept, γ_{10}	0.400	0.049	8.116	<0.001
Average Income, γ_{11}	-0.101	0.126	-0.797	<0.001
Reactivity, β_1				
Intercept, γ_{10}	-0.537	0.049	8.116	<0.001
Sex, γ_{11}	0.173	0.092	1.885	n.s.
Age, γ_{12}	0.005	0.004	1.461	n.s.
Average Income, γ_{03}	-0.066	0.138	-0.479	n.s.
Multiple Years, γ_{04}	0.108	0.107	1.016	n.s.
Adaptation, β_2				
Intercept, γ_{20}	-0.399	0.058	-6.909	<0.001
Sex, γ_{21}	-0.088	0.102	-0.868	n.s.
Age, γ_{22}	0.004	0.004	1.000	n.s.
Average Income, γ_{03}	-0.239	0.154	-1.548	n.s.
Multiple Years, γ_{04}	0.123	0.128	0.956	n.s.

Note: N = 1119.

Figure Captions

Figure 1: Adaptation to Unemployment as a Function of Reaction to Unemployment.


Reaction to Unemployment
Life Satisfaction
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
Baseline
React
Adapt
+1 SD
Mean
-1 SD